

CLAIMS

1. A system for recycling a used plastic material as a resin material, said system comprising:

5 (a) a means for sorting used plastic materials by purpose of recycling;

(b) a means for crushing and melting said used plastic material sorted;

10 (c) a reviving means for regaining a desired property; and

(d) a means for measuring a physical property of a reclaimed plastic revived and indicating said measured physical property for quality assurance.

15 2. A recycling system according to claim 1, wherein said means for sorting used plastic materials by purpose of recycling need not separate an impurity as long as a physical property required for a reclaimed plastic is satisfied.

20 3. A recycling system according to claim 1, wherein said means for sorting used plastic materials by purpose of recycling does not separate resins which are compatible with each other.

25 4. A recycling system according to claim 1, wherein said means for sorting used plastic materials includes measurement means for a transparent resin portion in a plastic waste material containing a transparent resin.

30 5. A recycling system according to claim 4, wherein a resin waste material containing said transparent resin is a housing for magnetic recording product, and said transparent resin portion is a window material or a flange in said housing.

6. A recycling system according to claim 1, wherein

said means for sorting used plastic materials separates a resin containing an antistatic agent.

7. A recycling system according to claim 6, wherein said resin containing an antistatic agent is a resin in
5 a lid portion of a magnetic recording product.

8. A recycling system according to claim 1, wherein said property regained by said reviving means is at least one property selected from the group consisting of density, water absorption, coefficient of expansion, tensile strength,
10 elongation at breakage, flexural strength, flexural modulus, Izod impact strength, notched Izod impact strength, heat deformation temperature, flame retardancy, shrinkage factor, volume resistance, permittivity, weld elongation at breakage and tensile strength, MFR (melt flow rate), hue, degree of
15 transparency, and texture.

9. A recycling system according to claim 1, wherein said reviving means is at least one means selected from the group consisting of changing structure by an oxidation and reduction, addition, or elimination reaction, increasing
20 or reducing molecular weight, controlling physical property by an additive, controlling by increasing or reducing content of a constituent or changing composition, and controlling by blending resins.

10. A recycling system according to claim 1, wherein
25 said measurement of a physical property of said reclaimed plastic includes a measurement of impact strength and/or hue.

11. A recycling system according to claim 1, wherein said measurement of a physical property of said reclaimed plastic includes a measurement of the content of a rubber
30 component in said reclaimed plastic.

12. A recycling system according to claim 1, wherein

said used plastic material is a plastic material salvaged under specific conditions.

13. A recycling system according to claim 1, wherein
said used plastic material is at least one resin selected
5 from the group consisting of a styrene resin, a polycarbonate resin, and an alloy of a polycarbonate resin and an ABS resin.

14. A recycling system according to claim 1, wherein
said used plastic material is a plastic material salvaged
from a used magnetic recording product.

10 15. A recycling system according to claim 14, wherein
said used plastic material is a mixture of an ABS
(acrylonitrile/butadiene/styrene) resin and an AS
(acrylonitrile/styrene) resin or a mixture of a HIPS (high
impact polystyrene) resin and a PS (polystyrene) resin.

15 16. A recycling system according to claim 14, wherein
said used plastic material is a mixture of an ABS
(acrylonitrile/butadiene/styrene) resin and an AS
(acrylonitrile/styrene) resin salvaged from a used magnetic
recording product for broadcasting station.

20 17. A recycling system according to claim 14, wherein
said system is preliminarily provided with a means for
erasing information recorded on said used magnetic recording
product.

18. A recycling system according to claim 1, wherein
25 said used plastic material contains an antistatic agent.

19. A plastic material containing a reclaimed plastic
obtained by a system for recycling a used plastic material
as a resin material, wherein said recycling system comprises:

(a) means for sorting used plastic materials by the purpose
30 of recycling;

(b) means for crushing and melting said used plastic

material sorted;

(c) reviving means for regaining a desired property; and

(d) means for measuring a physical property of said reclaimed plastic revived and indicating said measured
5 physical property for quality assurance.

20. An ABS (acrylonitrile/butadiene/styrene) resin containing an ABS resin obtained by a system for recycling a used plastic material as a resin material, wherein said recycling system comprises:

10 (a) means for sorting used plastic materials by purpose of recycling;

(b) means for crushing and melting said used plastic material sorted, (c) a reviving means for regaining a desired property; and

15 (d) means for measuring a physical property of said reclaimed plastic revived and indicating said measured physical property for quality assurance.

21. A polycarbonate resin containing a polycarbonate resin obtained by a system for recycling a used plastic material
20 as a resin material, wherein said recycling system comprises:

(a) means for sorting used plastic materials by purpose of recycling;

(b) means for crushing and melting said used plastic material sorted;

25 (c) reviving means for regaining a desired property; and

(d) means for measuring a physical property of said reclaimed plastic revived and indicating said measured physical property for quality assurance.

22. A resin shaped article containing an ABS
30 (acrylonitrile/butadiene/styrene) resin comprising an ABS resin obtained by a system for recycling a used plastic material

as a resin material, wherein said recycling system comprises:

(a) means for sorting used plastic materials by purpose of recycling;

5 (b) means for crushing and melting said used plastic material sorted;

(c) reviving means for regaining a desired property; and

(d) means for measuring a physical property of said reclaimed plastic revived and indicating said measured physical property for quality assurance.

10 23. A resin shaped article containing a polycarbonate resin comprising a polycarbonate resin obtained by a system for recycling a used plastic material as a resin material, wherein said recycling system comprises:

15 (a) means for sorting used plastic materials by purpose of recycling;

(b) means for crushing and melting said used plastic material sorted;

(c) reviving means for regaining a desired property; and

20 (d) means for measuring a physical property of said reclaimed plastic revived and indicating said measured physical property for quality assurance.

24. A resin shaped article according to claim 22 or 23, wherein said article is a magnetic recording product.

25 25. A method for reprocessing a used ABS resin (A), said method comprising:

separating from a used product an ABS (acrylonitrile/butadiene/styrene) resin in an independent form or in the form of a mixture with another resin, and

30 incorporating into said used ABS resin (A) separated an unused ABS resin (B) and/or another used ABS resin (C) to improve said used ABS resin (A) in physical property.

26 A reprocessing method according to claim 25, wherein an ABS (acrylonitrile/butadiene/styrene) resin is separated in the form of a mixture with an AS (acrylonitrile/styrene) resin from said used product.

5 27. A reprocessing method according to claim 25, wherein said unused ABS (acrylonitrile/butadiene/styrene) resin (B) and/or another used ABS resin (C) has an impact resistance higher than that of said used ABS resin (A) separated from said used product.

10 28. A reprocessing method according to claim 25, wherein said unused ABS (acrylonitrile/butadiene/styrene) resin (B) and/or another used ABS resin (C) is incorporated so that a value obtained from the formula 1 below is equivalent to or higher than the impact resistance required for a reclaimed
15 ABS resin;

 Formula 1 = { Content of used ABS resin (A) } × { Impact resistance of used ABS resin (A) } + { Content of unused ABS resin (B) } × { Impact resistance of unused ABS resin (B) } + { Content of used ABS resin (C) } × { Impact resistance of used
20 ABS resin (C) } .

 29. A reprocessing method according to claim 28, wherein said value obtained from the formula 1 is 80 per cent or more of the impact resistance of the ABS (acrylonitrile/butadiene/styrene) resin (A) separated from
25 said used product, as measured in a state in which the ABS resin (A) is unused.

 30. A reprocessing method according to claim 28, wherein said value obtained from the formula 1 is 15 J/m or more.

30 31. A reprocessing method according to claim 25, wherein said unused ABS (acrylonitrile/butadiene/styrene) resin (B) and/or another used ABS resin (C) has an impact resistance

higher than and a melt flow rate lower than those of said used ABS resin (A) separated from said used product.

32. A reprocessing method according to claim 25, wherein a pigment is further incorporated into said used ABS
5 (acrylonitrile/butadiene/styrene) resin (A) separated.

33. A reprocessing method according to claim 25, wherein said used product is a used magnetic recording product.

34. A reclaimed ABS resin comprising:

a used ABS (acrylonitrile/butadiene/styrene) resin (A)
10 separated in an independent form or in the form of a mixture with another resin from a used product; and

an unused ABS resin (B) and/or another used ABS resin (C) incorporated into said used ABS resin (A).

35. A reclaimed ABS resin according to claim 34, wherein said
15 used ABS (acrylonitrile/butadiene/styrene) resin (A) is an ABS resin separated in the form of a mixture with an AS (acrylonitrile/styrene) resin from a used product.

36. A reclaimed ABS resin according to claim 34, wherein said
20 unused ABS (acrylonitrile/butadiene/styrene) resin (B) and/or another used ABS resin (C) has an impact resistance higher than that of the used ABS resin (A) separated from a used product.

37. A reclaimed ABS resin according to claim 34, wherein
25 said unused ABS (acrylonitrile/butadiene/styrene) resin (B) and/or another used ABS resin (C) is incorporated so that a value obtained from the formula 1 below is equivalent to or higher than the impact resistance required for said reclaimed ABS resin;

Formula 1 = { Content of used ABS resin (A) } × { Impact
30 resistance of used ABS resin (A) } + { Content of unused ABS resin (B) } × { Impact resistance of unused ABS resin (B) } +

{ Content of used ABS resin (C)} × { Impact resistance of used
ABS resin (C)} .

38. A reclaimed ABS resin according to claim 37, wherein
said value obtained from the formula 1 is 80 per cent or more
5 of the impact resistance of said used ABS
(acrylonitrile/butadiene/styrene) resin (A) separated from
a used product, as measured in a state in which the ABS resin
(A) is unused.

39. A reclaimed ABS (acrylonitrile/butadiene/styrene)
10 resin according to claim 37, wherein said value obtained from
the formula 1 is 15 J/m or more.

40. A reclaimed ABS resin according to claim 34, wherein
said unused ABS (acrylonitrile/butadiene/styrene) resin (B)
and/or another used ABS resin (C) has an impact resistance
15 higher than and a melt flow rate lower than those of said used
ABS resin (A) separated from a used product.

41. A reclaimed ABS resin according to claim 34, wherein
said used ABS (acrylonitrile/butadiene/styrene) resin (A)
separated has a pigment further incorporated.

20 42. A reclaimed ABS (acrylonitrile/butadiene/styrene)
resin according to claim 34, wherein said used product is a
used magnetic recording product.

43. A resin shaped article containing a reclaimed ABS
(acrylonitrile/butadiene/styrene) resin which comprises a
25 used ABS (acrylonitrile/butadiene/styrene) resin (A)
separated in an independent form or in the form of a mixture
with another resin from a used product, and an unused ABS resin
(B) and/or another used ABS resin (C) incorporated into said
used ABS resin (A).

30 44. A resin shaped article according to claim 43, wherein
said article is a magnetic recording product.